

made in vmi

The journal of all types of mixing

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EDITORIAL

Successful companies are the visionary companies who simply see the skin the surface of trends in their markets and translate them into results. In fact, these companies focus on putting their know-how to use for the benefit of their customers, both present and future. At VMI-Rayneri, we have brought together the experience of many years of equipment manufacture and usage as well as increasing our R&D budgets over the recent years.

We are firm believers that experience plus investment in new technologies translates into profitable advantages for our customers/users.

Once again, by bringing you this new issue of Made in VMI-Rayneri, we wish you to share with you our experience and daily development of new solutions which enable you to better respond to the requirements and trends of your own markets. We invite you all especially to discover our work on equipment sound reductions and our recommendations to efficiently disperse dense powders in large quantities.

Happy reading!

Dominique Denoël
Executive Vice President VMI Rayneri



Know-how

1 Another look at the dispersion of powders

VMI-Rayneri recommends a very different approach which promotes... **(more page 2)**



Research & Development

2 Transmit more silent energy

A blending operation necessarily induces energy transfer which should be performed more or less quickly depending on the nature of the mixture... **(more page 3)**



What the professionals say

3 VMI-DIPTA : A partnership of trust

A solid commercial relationship links VMI-Rayneri and DIPTA, a cosmetic company... **(more page 4)**



News

4 www.agitateur-vmi.com

VMI-Rayneri launches a new internet site dedicated to industrial mixers and agitators... **(more page 4)**

Efficiently disperse dense powders in large quantities, giving the final product a very high viscosity

A majority of industrial mixer manufacturers recommend the use of saw tooth impellers (deflocculators), "known" to be the most effective in terms of results obtained when one is interested in the granulometry of mixing. On the contrary, it has turns out that these impellers are absolutely not the most efficient as far as energy consumption is concerned, especially when very thick products have to be blended in large quantities. In fact, it is not uncommon for these manufacturers to specify power levels on the order of 200 to 250 kW for 5000 to 6000 litre tanks.

More effective solutions

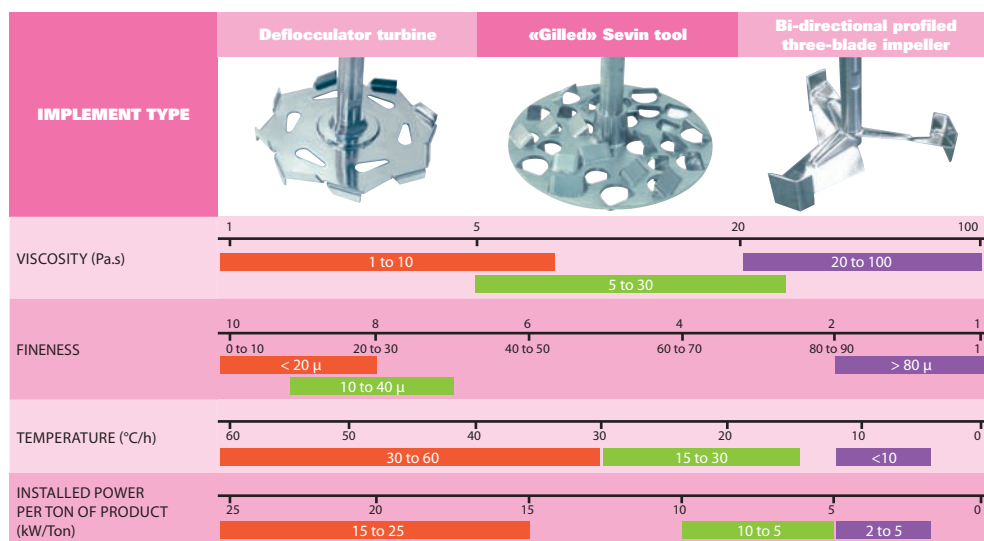
VMI-Rayneri recommends a very different approach which promotes, especially in cases of mixing in large quantities of thick products, the implementation of much lesser energy. This recommendation is mainly based on the 2 relatively elementary observations:

- When strong shearing is required for dispersion of low viscosity mixtures, we can, on the contrary be content with the effect of natural attrition of high viscosity products by favouring significant flow rather and not high shearing,
- Thick products very often require much lower granulometry than the more liquid products.

other than the conventional saw tooth turn out to be much more effective for mixing with large quantities of thick products.

In this case VMI-Rayneri often recommends the «gilled» Sevin

tool or the bi-directional profiled three-blade impellers.



That is why the impellers

Less power consumed

It is shown here that when the «gilled» Sevin or the bi-directional profiled three-blade impellers are used in place of or instead of saw tooth impellers, the power necessary for the blending can be reduced by a factor on the order of 3 to 7! This gain will be even more spectacular as the quantity of products to be blended will be significant.

Lower temperatures

It is also interesting to study the thermal phenomenon produced by the solutions compared here. The constraints linked with the possible modification of rheological characteristics of certain products in case of rise in temperature, or

the necessity to quickly package the finished product without waiting for a decrease in temperature, or the danger caused by reaching the self-ignition temperature demonstrate the superiority of the «gilled» Sevin or bi-directional profiled three-blade impellers. The use of these impellers can sometimes obviate the need for a double jacketed tank.



A different approach

Many applications, especially those for pseudo plastic and/or thixotro-

pic products, can take advantage of the shearing power of a bi-directional three-blade which is more effective than a standard tri-blade in lowering the viscosity of the product and therefore improving circulation within the tank. Many users are missing out on these much more efficient solutions as they wish to maintain constant peripheral speed of their impellers in the extrapolation phase which helps in dimensioning an industrial mixer (See article no2 of Made-in VMI-Rayneri on this subject). VMI-Rayneri offers a different solution which turns out to be much more profitable in terms of efficiency, productivity and costs.

Conclusion

By preferring the circulation capacities of the «gilled» Sevin or bi-directional profiled three-blade impellers, one can design much more efficient mixers in the case of dispersion of very thick products in large quantities. It is moreover the choice that a number of users of VMI-Rayneri mixers have already made to manufacture their paints, surface coatings, laminants, glues and also ceramics or cosmetic creams (Akzo, Soprema, Peintures du Sud-Ouest, V33, EMFI, Vicat, Parex Lanco, Reckitt Benckiser, Tollens, Villeroy & Boch...).



Do you sufficiently care about the maintenance of your equipment?

It is well known that the commitment of a company is also judged by the quality of its after sales service.

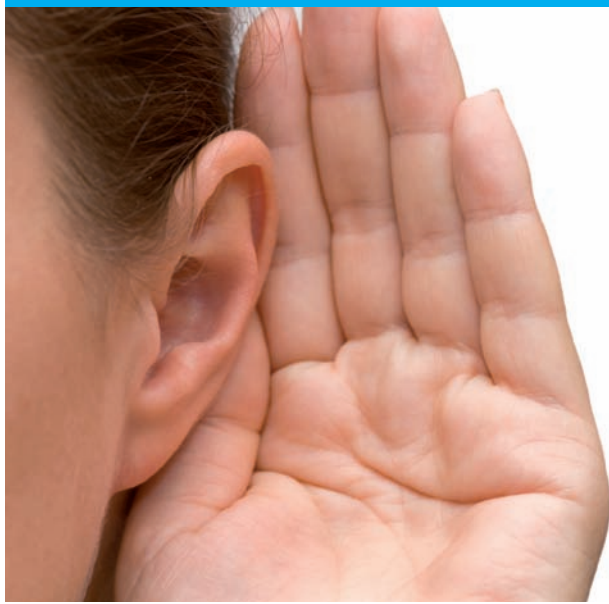
For years, VMI-Rayneri has been proposing to support its customers in the use of their mixers by establishing preventive maintenance contracts. A structured offer according to several formulas (occasional, annual or multiple-year assistance) is proposed to the customers of VMI-Rayneri who can thus plan in peace the maintenance operations necessary to maintain their production tool in best working order.

VMI-Rayneri recommends on the guaranteed intervention periods, therefore minimizing the period of non-availability of the devices.

Please note that this expertise can be extended beyond VMI-Rayneri machines to a certain number of peripheral units.

Capable of mobilising not less than 10 technicians in France in last August, we are well organised to assist you during your traditional shut-down periods.





Transmit more silent energy

Research & Development

A blending operation necessarily induces energy transfer which should be performed more or less quickly depending on the nature of the mixture. Emulsion processes particularly consume significant quantities of energy in the reduced time periods. This demand for energy is implemented in majority of the cases of high speed rotary machines generating noise which should be reduced to the maximum for operator comfort.

Less noise to simplify the organisation of industrialists

VMI-Rayneri has recently undertaken research work in order to optimise the energy/noise ratio, and therefore design more efficient machines

without increasing noise levels. Current European standards do not impose sound limits on equipment manufacturers,

but they require them to state noise levels of each apparatus (mean sound power level and peak value) so that the users can take suitable measures

to limit possible nuisances. This legislation describes three categories of preventive actions to be implemented by industry, according to the

mean and peak sound levels. It goes without saying that every industrialist will wish to have the quietest apparatus so that they only have

to resort to a minimum of restrictive and costly corrective measures.

Lower exposure values triggering the action of prevention (level 1)

Daily exposure level to noise: 80 dB	Obligations of the company director: • Provision of individual hearing protectors • Information and training of workers • Preventive audiometric examination
Peak acoustic pressure level: 135 dB	
References of the labour code: Articles R 231-131-I-1°, 231-133 et 231-134-II and III	

Higher exposure values triggering the action of prevention (level 2)

Daily exposure level to noise: 85 dB	Obligations of the company director: • Program for technical measures or organisation of the work with a view to reduce the exposure to noise • Suitable signaling, limitation of access • Verification that the individual hearing protectors are worn • Enhanced medical surveillance of the exposed worker
Peak acoustic pressure level: 137 dB	
References of the labour code: Articles R 231-130-II, R 231-130-III, R 231-131-I-2° et R 231-134-I	

Exposure limit values (taking account of the attenuation ensured by the individual hearing protectors worn by the workers)

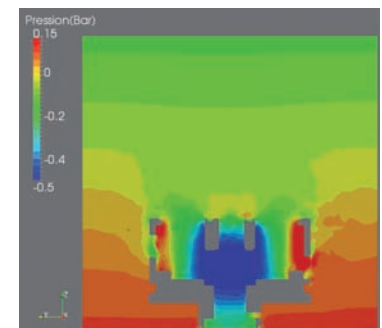
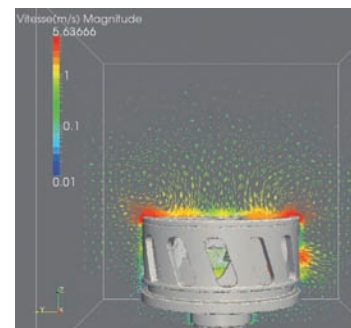
Daily exposure level to noise: 87 dB	Obligations of the company director: • Immediate adoption of measures for reduction of the noise exposure level to values lower than the limits • Identification of cases of excessive exposure and adaptation of the protective measures
Peak acoustic pressure level: 140 dB	
References of the labour code: Article R 231-132	

Digital simulations for research and understanding

An emulsion created by a rotor-stator type system, which depends on the need to maintain high flow rates through small passage points, leads to generation of noise. In fact, these fast cycles of pressurisation

and expansion follow one another which generate significant load losses and unavoidable sound sources but it is possible to mitigate them. VMI-Rayneri has designed digital models using finite elements to

highlight the flows liable to generate noise. This first step has enabled us to design a new type of rotor which minimizes load losses and local extraneous flows.



Tests to refine and develop

Secondly, comparative measurements of noises from granulometry and sound levels have been conducted between prototypes and several existing

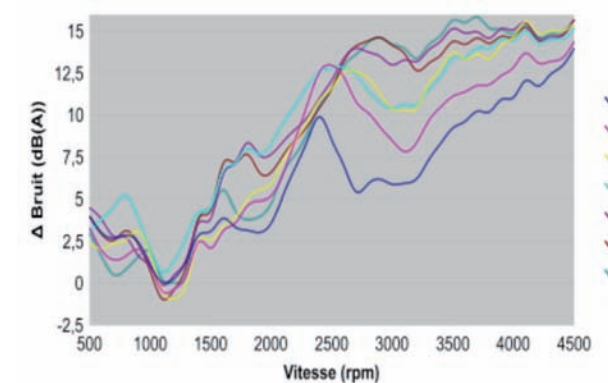
combinations of rotor-stator (see article "Characterisation and optimisation of emulsions" from the 2nd issue of Made-in VMI Rayneri). These measure-

ments have demonstrated two main things:

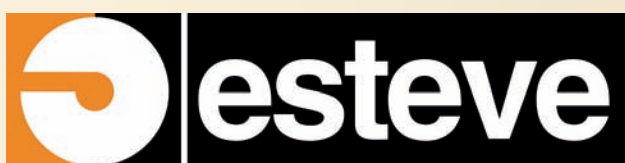
- for the same power consumed, the new rotor-stator can run faster and hence provide finer emulsions,
- a minimum reduction of 2dB (reminder: a difference of -3 dB corresponds to lowering sound level by half) has been obtained with the new rotor-stator compared to previously available generations.

The remarkable results of this work have already been applied by VMI-Rayneri: we offer a new design of much higher performance rotor-stators at the given energy/noise generated ratio without having to resort to more expensive and often difficult to attain sound attenuation systems.

Configuration	only motor	Prototype		R3/S2	R8/S2	R3/S7	R8/S7
		Without counter-paddle	With counter-paddle				
Average noise 2000-3000 (dB)	69	78	80	89	82	87	84
Maximum noise	72	82	85	91	84	93	90



The ESTEVE combines its know-how with that of VMI-Rayneri



The ESTEVE company, a specialist in storage, weighing and dosage of powdered products has this summer joined the GROUPE BRETECHE INDUSTRIE, the holding which owns VMI-Rayneri.

Founded by Mr. Jean ESTEVE in 1950, and established at Rians (Cher, France), ESTEVE SAS is a highly regarded provider for the storage and dosage of powdered products for agro-food, chemical and plastic industries, both in France and on the export market.

Over the last few years, ESTEVE has developed a specialised expertise in automation

and computerisation of industrial processes. In 2010, it reached an annual sales turnover of Euros 14 million and employs 110 persons. The ESTEVE's entry into the mixing sector of the BRETECHE INDUSTRIE Group will enable to offering industrial customers turnkey solutions of silos for finished products, thus complementing VMI-Rayneri range of solutions.

VMI-Rayneri's new internet site dedicated to industrial mixers and agitators



VMI-Rayneri offers complete mixing systems for which training and guidance of specialists in the mixing technology is indispensable. The wide range of agitation tools should be directly accessible via easily understandable and interactive supports.

The new internet site launched by VMI-Rayneri enables chemical, pharmacy, cosmetic and coating professionals to access intuitively and efficiently all the products that the company offers in the field of agitators and dispersers meant to be installed into existing tanks.

The different ranges of agitators and mixers can be consulted by type of products, if the Internet user knows exactly what he wants. The access can also be made from his specific requirements, namely what mixture is made (for example is it a liquid-solid, liquid-liquid mixture, involving soluble or insoluble components or miscible or no miscible components, etc.). Navigation tools directly lead to the range of products meeting the identified need. A description of each of the ranges is given in detail as

well: the general principle for the mixture that enables the products (for example, principles of dispersion, emulsion, homogenisation, etc.), their technical specifics... All this reinforced with dynamic images, concrete examples of applications and videos. Once the internet user has determined his requirement in the light of these explanations, two clicks are sufficient to request a customised estimate, and/or to be called back by a VMI expert for additional information. The VMI-Rayneri specialist will contact you within 3 working days

with the requested elements.

Find all
VMI-Rayneri
products on:
www.agitateur-vmi.com
the first internet site
on mixing which meets
your specific requirements!

A new control panel for today AND for tomorrow!

The VMI-Rayneri MOBIMIX high & low range of agitators is at present equipped with a control panel, or an Intelligent Interface (Man Machine Interface), which provides 3 advantages to its users:

- + ergonomics
- + functionality
- + economy

Ergonomics:

This new control panel is installed on the machine such that the operator can always keep an eye on his production process while he controls the apparatus. It is closer to the work station and the tank, than in previous configurations. Moreover, the new design of the control leads to a smaller floor space allowing the machine to be housed in more cramped areas. The modern design of the MMI makes the operations of programming and controls of the Mobimix apparatus much more intuitive and faster.

Functionalities:

The great new feature offered by this new HMI is to be able to program automatic up and down cycling of the agitator through the mixing vessel. By defining the agitator's range of movement in the tank, the operator can guarantee a more homogenous mixture (for example in the case of supernatant products in a very viscous mixture) without repetitive manual operations. The operator can also store several speeds of his choice for later use. The adjustment during operation, above and below these speeds is always possible by single simple impulsion on the buttons meant for this purpose.

More economic:

The use of standard and proven PLCs has enabled VMI-Rayneri to develop an HMI offering maximum optional integrated functionalities without additional development

fees, saving customer time and money. This new HMI enables its users to have a machine perfectly suitable for their products for today and for tomorrow, products which may need more agitator flexibility and performances.



What the professionals say

VMI-DIPTA: A partnership of trust

A solid commercial relationship links VMI-Rayneri and DIPTA, a cosmetic company: VMI was entrusted with the complete renewal of DIPTA's mixing equipment.



DIPTA (Development for Industrialisation and Promotion of Advances Technologies) is the manufacturer of derma-cosmetic products for the Bioderma Laboratories, Institut Esthederm International and the new brand Etat Pur.

Created in 1985 and established since 1988 in Aix-en-Provence, DIPTA has witnessed its production volume multiply by 4 times in 10 years. It produced 37 Million units in 2010. To support its growth and meet the growing demand for innovation, DIPTA wanted to evolve and standardise its production equipment. The Director of the company, Bernard GAUTHIER, decided to dedicate an investment of over 8 Million euros for this complete renewal. The 170 employees will also see their working conditions improve in a larger plant, which is now 11 700m². The renewal of DIPTA equipment has consolidated the existing relationship of trust with VMI-Rayneri, which the company has chosen as sole supplier of industrial mixers for Cosmetics for its production. The plant has thus totally renewed its fabrication equipment:

- Five vacuum homogenisers from the Trimix range, with liftable vessel lids, with production capacities from 30 L to 5000 L
- a 6000 L tank for foam products,
- a complete automated lotions production platform with a total capacity of 20 000 litres.

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